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1. A method of synchronizing asynchronous time-based and motion data in a system in which the time-based data and motion data are transmitted by a server over a network to a client, the method comprising:

5 retrieving a time-based data stream and a motion data stream at the server, each stream comprising frames of data;

10 variably buffering one of the time-based data stream and the motion stream to produce two streams having synchronized frames; and

using the synchronized frames at the client for playback of synchronized motion and time-based data to a user.

15 2. The method of claim 1 wherein the variably buffering occurs at the server.

20 3. The method of claim 1 further including calculating a difference between delays for the motion stream and the time-based data stream through the server to determine an amount of variable buffering for a faster of the two streams.

4. The method of claim 1 further including transferring only those data values for a frame that have changed since a last frame was transmitted.

25 5. The method of claim 1 wherein the network is the Internet.

30 6. The method of claim 1 wherein the motion data is mapped to control the movement of a virtual figure displayed in a scene at the client.

7. The method of claim 1 wherein the motion data is generated by a body suit.

8. The method of claim 1 wherein the motion data includes background data for use in producing a scene at the server.

9. The method of claim 1 wherein data transfer from the server to the client is concurrent with the receipt of the time-based data stream and motion data stream at the server.

10. The method of claim 1 wherein the time-based data is voice data.

11. The method of claim 1 wherein the synchronized data frames include one or more data channels, the server transmitting on the network at a predetermined interval between synchronized data frames a descriptor packet which describes each channel contained in the synchronized data frames such that a client may join in progress a multicast of synchronized data frames.

12. The method of claim 1 wherein the time-based data is a pre-recorded audio track and the method further includes synchronizing playback of the pre-recorded audio track at the server and buffering of the pre-recorded audio track to allow for coupling with motion data generated in time with the playback of the pre-recorded audio track.

13. The method of claim 1 further including sequencing synchronized frames output from the server to the

client to provide for ordered playback of the synchronized frames to a user at the client.

14. A method of packaging synchronized frames of data where each frame includes one or more channels of data in a system in which synchronized frames are transmitted by a server over a network to a client, the method comprising:

storing a last data value for each channel in each frame transmitted over the network;

retrieving new synchronized frames for transmission over the network; and

packaging and transmitting over the network only data for channels having changed data values.

15. The method of claim 14 further including transmitting a descriptor packet at a predetermined interval over the network, the descriptor packet including channel descriptors for each channel in the synchronized frames.

16. An apparatus for synchronizing asynchronous time-based and motion data in a system in which the time-based data and motion data are transmitted by a server over a network to a client, the apparatus comprising:

a data retriever for retrieving a time-based data stream and a motion data stream at the server, each of the streams comprising frames of data;

a data stream synchronizer for buffering one of the time-based data stream and the motion stream to produce two streams having synchronized frames; and

a packetizer for packaging synchronized frames of motion data and time-based data for use at the client for playback of synchronized motion and time-based data to a user.

17. The apparatus of claim 16 further including a multicaster for multicasting the synchronized motion and time-based data to clients coupled to the network.

18. The apparatus of claim 16 wherein the  
5 packetizer includes a storage device and a comparator, the storage device for storing data values last transmitted over the network for each channel in each of the synchronized frames, the comparator for comparing data values for new frames with the data values stored in the storage device,  
10 the packetizer only packaging for transmission to the client channel data for channels having changed data values as determined by the comparator.

19. A method for playing back time-based and motion based data that has been synchronized comprising:  
15 mapping the motion based data to control the movement of a virtual figure in a scene displayed at a client; and  
playing back in synchronization with movement of the virtual figure the time-based data.

20. A method of synchronizing asynchronous motion and audio data in a system in which the motion and the audio data are transmitted by a server computer to one or more clients, the clients providing a real time output of synchronized motion and audio data, the method comprising:  
25 retrieving an audio stream including voice data and a motion data stream including one or more motion data channels at the server, each streams including frames of data;

calculating a delay through the server for a frame  
of data on each of the streams;

calculating a difference between the delay for the  
audio stream and the motion data stream to determine which  
5 of the two streams is faster;

variably buffering a faster of the streams to  
synchronize the audio stream and the motion data stream  
resulting in two output streams having synchronized data  
frames;

10 packaging the synchronized data frames;

multicasting the synchronized data frames to one or  
more clients over a network;

at each client computer, using the synchronized data  
frames for synchronous playback of the audio and motion data  
15 for display to a user.